Attorney's Docket No.: 06618-641001 / CIT 3221

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant :Marcel Gavriliu et al. Art Unit : 2643
Serial No.:09/681,728 Examiner : Suhan Ni
Filed :May 29, 2001
Title :RESONANT FREQUENCY ADJUSTMENT USING TUNABLE DAMPING RODS

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Applicant herewith files this brief on appeal, thereby perfecting the notice of appeal originally faxed on April 22, 2004. The categories and subjects required by rule 192 follow.

1. Real Party in Interest

The application is assigned of record to California Institute of Technology, who is hence the real party in interest.

2. Related Appeals and Interferences

There are no known related appeals or interferences.

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3. Status of Claims

Claims 1-22 are pending. Of those claims, claims 4 and 14-22 are withdrawn from consideration. However, the finality of the restriction requirement remains traversed, since the same claim (claim 1) is in both group I in group II, which are noted by the restriction requirement as being "independent and distinct." It makes no sense that claim 1 can be independent and distinct from itself.

Also, after reconsideration, applicants have decided to only appeal the rejection of claims 7-9 and 13 among the rejected claims.

4. Status of Amendments

An amendment after final was filed on April 1, 2004 and this amendment was entered in full in paper number 14.

5. Summary of Invention

The present invention teaches using a resonant frequency adjustment by tunable damping rods. Resonance can cause undesired defects in different enclosures such as a loudspeaker enclosure. For example, sound may excite undesirable resonance in a loudspeaker enclosure, and that resonance may radiate from the cabinet walls additional sound waves (see paragraph 6).

According to the present specification, a special tunable damping rod is used, where holes 206, 208 are formed in the enclosure and a threaded rod 210 with washers 211, 212 are tightened against the enclosure walls. The tightening operation builds tension and causes the walls to move towards one another (see paragraph 7). This raises the fundamental resonance of the enclosure, (see paragraph 8). In another embodiment, constrained layer damping material is placed underneath the washer (see paragraph 11).

6. Issues

The issues for review are: claims 1-3, 5-9 and 13 properly indicated as being unpatentable over Koschwitz in view of Rowley?

7. Grouping of Claims

None of the claims rise and fall together for reasons set forth herein.

8. Argument

Claims 1-3, 5-9 and 13 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Koschwitz in view of Rowley. This contention is respectfully traversed.

The rejection states that Koschwitz teaches a basic resonating element with a tension increasing part. However, the rejection admits that Koschwitz does not teach damping material of the type claimed, and specifically attempts to use Rowley to show that sound damping material.

It is respectfully suggested that the hypothetical combination of Koschwitz in view of Rowley is not a proper combination that would be made by one having ordinary skill in the art. It is further suggested that even if the combination were made, that it would still not teach or suggest the subject matter of the presently appealed claims.

Assuming the combination were made, it would show a Rowley-type material along with a basic system of Koschwitz. The rejection and the advisory action refer to the material 26 as being a sound damping material. Admittedly, the material 26 looks in the drawing to be an o-ring. However, the material 26 is never taught or suggested as being a sound damping node--but rather is taught to be the opposite. Rowley teaches that the material 26 is used as a pressure block, in order to enhance the pickup from the stethoscope; not in order to damp the sound. The pressure block 26 is described for example in Rowley page 2 lines 70-72. The pressure plate 28 is described as having a mass which filters high frequency, but the pressure block 26 is

described as being used to preload the stethoscope. The effect of this is described in column 4 beginning at line 5 and specifically that the preloading prior to use of the stethoscope "issues a greater uniformity of sound transmission...". Therefore, this is not a sound damping material, but is rather a sound enhancing material. As such, Rowley does not teach anything which would suggest modifying Koschwitz in order to include a sound damping material of that type.

Moreover, it is respectfully suggested that the hypothetical combination of Koschwitz in view of Rowley could not be operatively made by one having ordinary skill in the art. Rowley specifically teaches that frequency response characteristics of the stethoscope are changed by pressing the stethoscope harder against the patient, see column 4 of Rowley. There is no teaching or suggestion of changing any kind of pressure on the tunable damping element. Since Rowley does not include a tunable damping element, it is apparent that one having ordinary skill in the art would certainly not take away any teaching from Rowley that would suggest modifying the tunable damping element to include sound damping material.

If the hypothetical combination were made in the way suggested by the official action, it would require that a sound damping material be substituted for the material 26. If that

happens, loading against the sound damping material would reduce the effectiveness of the stethoscope. Therefore, making this combination and changing the material 26 to a sound damping material, would go against the express teaching of Rowley, who teaches that the material should be conducting, in the sense that it conducts vibration, not damping as would be required by the hypothetical combination. Therefore, it is respectfully suggested that the combination is improper under M.P.E.P. 2143, and could not be made by one having ordinary skill in the art.

Claim 7 should be allowable for these reasons. Claim 8 defines tuning the resonant element to a frequency that is related to characteristics of the sound damping material. Since there is no sound damping material, it is apparent that this additional feature is in no way taught or suggested by the cited prior art.

Claim 9 further defines further characteristics which are not taught or suggested by the cited prior art.

Claim 13 defines attaching a sound damping material to the enclosure and tuning the enclosure to an optimum frequency of the sound damping material. Neither of the items of cited prior art teach or suggest anything about tuning using sound damping material; much less the optimum frequency as defined. Therefore, this claim should be additionally allowable.

It is believed that all of the pending claims have been addressed in this paper. However, failure to address a specific rejection, issue or comment, does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above are not intended to be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

The brief fee of $165 is enclosed. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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Scott C. Harris
Reg. No. 32,030

Fish & Richardson P.C.
12390 El Camino Real
San Diego, California 92130
Telephone: (858) 678-5070
Facsimile: (858) 678-5099

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Appendix of Claims

1. A method, comprising: attaching a tunable damping element to a resonating element; and increasing an amount of tension in said resonating element to increase a resonant frequency of the resonating element in a way that decreases an effect of stimulated audio on the resonating element.

2. A method as in claim 1, wherein said tunable damping element includes a rod which is connected to said resonating element, and wherein said increasing includes tightening said tunable damping element, to increase an amount of tension in said resonating element.

3. A method as in claim 1, wherein said resonating element includes a cabinet with facing surfaces, and said rod extends between said facing surfaces to tension said alternating surfaces relative to one another.

5. A method as in claim 1, wherein said resonating element includes a speaker enclosure.

6. A method as in claim 2, wherein said tightening comprises providing a washer on the rod, and tightening the washer against a surface of the resonating element.

7. A method as in claim 6, further comprising coupling a sound damping material to said washer.

8. A method as in claim 7, wherein said increasing comprises tuning the resonating element to a frequency related to characteristics of the sound damping material.

9. A method as in claim 8, wherein said characteristics include a maximum frequency of maximum sound absorption of the sound damping material.

10. A method, comprising: forming an audio enclosure which produces audio frequencies at a specified frequency; and tuning a resonant frequency to increase a resonant frequency of the enclosure to a level outside of a bandwidth of the audio frequencies.

11. A method as in claim 10, wherein said resonant frequency tuning comprises using a variable tension device to increase a tension of said audio enclosure.

12. A method as in claim 11 wherein said variable tension device comprises a rod with threads, which is selectively tightened to increase a tension.

13. A method as in claim 12, further comprising attaching a sound damping material to the enclosure, and wherein said tuning comprises tuning the enclosure to an optimum frequency of said sound damping material.